

ferred to irritation? Andral, throughout the work, constantly endeavours to elude the question, and to explain away a doctrine he cannot refute by sufficient facts and arguments, by such expressions as the following. "Irritation can only be considered as one of the elementary principles of the phenomenon." p. 10. "Irritation gives the impulse to the aberration of nutrition, but does not produce it." p. 282. "The only effect which can rationally be attributed to irritation, is the tendency to deviation from the natural type which it produced in the function of nutrition." p. 336. "That irritation may be the exciting cause of every species of alteration, both of nutrition and secretion; but that, of itself, it is incapable of producing any one of them." p. 411, &c. Although we are ourselves firm believers in the doctrine of irritation as taught by the physiological school of medicine, we do not much complain of this backwardness of Andral to admit its principles and precepts. His wary and sagacious mind is admirably calculated to clear up the obscurities that have so long involved pathological science, and however the scruples of himself and other eminent cultivators of pathological anatomy may somewhat retard the general adoption of a system of medicine founded on physiological data, their researches are preparing the way in the best possible manner for the final triumph of these doctrines.

Here we close the general anatomy, and conclude the first volume, which is complete within itself, and the most susceptible of analysis. If circumstances permit we may take up the second volume in the succeeding number. In the mean time we will barely remark, that the translators deserve the thanks of the profession for the very able manner in which they have executed their task; and we hope that the work may be republished in this country, that all classes of the profession may be enabled to become familiar with its pages.

*New York, January, 1832.*

C. D.

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ART. X. *The Library of Practical Medicine; published by order of the Massachusetts Medical Society for the use of its Fellows.* Vol. I. Containing a Treatise on Fever. By SOUTHWOOD SMITH, M. D.; and Clinical Illustrations of Fever. By A. TWEEDIE, M. D. Simpson and Clapp. Boston, 1831.

WE have on a former occasion given some account of the history, and of the institution of the Massachusetts Medical Society. We

described the objects of the society as twofold, combining in its operations the diffusion of knowledge by its annual and occasional publications, and the improvement of the police of the profession, by regulating the standard of medical education, and by promoting mutual confidence and harmony among its members; at the same time that its respectability and usefulness are increased by the distinction which it has created and maintained between educated and irregular practitioners. These last objects may now be regarded as accomplished to a degree nearly as great perhaps as the imperfection of all human institutions will allow. The society embraces a very large proportion, and is in a fair way speedily to embrace all the respectable practitioners of medicine in the state. The only limitation that formerly existed, that which required licentiates to continue in practice three years before they could be admitted fellows of the society, is done away by a recent modification of the charter, and all are now admissible as soon after they receive their license or diploma as they choose to make application. The line of demarcation too between the acknowledged physicians and the uneducated pretender, is so strongly drawn that almost no man in the community can mistake or confound them. There are those still who prefer empirics to educated physicians; but they prefer them as empirics, and employ them as such.

The plan of publication has also been changed since our former notice of the society, and it is this circumstance which has become the occasion of our again recurring to its proceedings at this time. Formerly the publications of the society were "few and far between;" for several years past they have been more frequent, a part of a volume being regularly published every year; and they are on the whole more valuable. These improvements are in consequence of the adoption of the plan, pursued by many of our public journals, of giving a premium for communications. This plan did not, however, fully answer the purposes contemplated by those who proposed it to the society. It should seem that the great body of the profession are every where little disposed to write for the press. And in regard to most of them, if they occasionally conquer this aversion, it is generally only to communicate a case or two, without any original deductions, either of theory or practice. This, as it is the easiest and most indolent, so it is the least useful mode of filling up the pages of a medical work. Series of cases, brought together and compared, so as to illustrate any important subject, whether of theoretical speculation, or of practical inquiry, are among the most valuable publications. It is those collections of detached cases, taken almost at ran-

dom from the practitioner's note-book, with little or no apparent object, but to fill out a communication, or to obtain its reward, and which, in spite of all the care of the most efficient editor, will still occupy a pretty large space in even our best medical journals, that we estimate at so low a rate.

It was another obstacle to the full success of the annual publication of the Massachusetts Medical Society, that a committee of a society can never exercise very rigidly the right of selection from the papers presented to it, and the duty of rejecting such as are of less value. Other considerations besides those which respect the merits of the several articles, unavoidably interfere with the freedom of their decisions. This difficulty is often sufficiently embarrassing to editors of other periodical works; but it is altogether impossible for a committee to act independently of such considerations, in regard to the communications of the members of the society, of which they are but the agents.

Instead, therefore, of continuing its efforts to enlarge its original publications, the Massachusetts Medical Society resolved to republish annually a volume on some subject of practical usefulness to the profession, to which they have given the title of *The Library of Practical Medicine*. This volume is distributed gratuitously to all the fellows of the society who are punctual in paying their assessments, and also to those who have honourably retired from the active duties of the society, and are exempted from assessment. By this means the individual members of the society receive for the small assessment which they are required to pay, a full equivalent, in pecuniary value, besides all the advantages and privileges to which the fellowship of the society entitles them. A still greater benefit is conferred upon the profession as a body, by the diffusion of useful works among its members. Many of them have little intercourse with their professional brethren, and little opportunity of consulting new books, or of keeping up a knowledge of the improvements in modern practice. But when a book is thus brought home to their notice, recommended as it is by being selected for such a purpose, by a committee in whom the society have confidence, and presented to them, without cost to themselves, they will not fail to read it; and the selection must be very unfortunate if good is not done by it.

The only objection that has been made to the plan is the complaint of some booksellers of its interfering with their sales. But to this objection there is a sufficient answer. In the first place, the society gives employment to the craft in the publication of their volume, and of course on terms which afford to the printers an adequate profit:

for they have neither the desire nor the means to deprive them of it. The most that the objection can amount to, therefore, is that the society, taking five hundred copies at a purchase, obtain them at a wholesale price instead of giving to the booksellers a retail profit. Were it true, therefore, that the retail sales of the booksellers were somewhat diminished and their gains consequently in some degree reduced, by this gratuitous distribution to its own members, it could not be regarded as an act of unjust interference, since a great general good is accomplished by it, and by means which afford a full remuneration to the publishers. And the society has scrupulously abstained from every thing like an interference with the retail trade except so far as the supply of a single copy to its own members.

It is far from being true, however, that this measure has any tendency to diminish the sales of medical books. On the contrary, it will necessarily increase such sales. A single volume a year will do but little to supply the wants of a truly reading man; but it may do much to excite or renovate a reading spirit in a man in whom the disposition to read has been long dormant. Hence it is one of the greatest benefits to the profession, of the gratuitous distribution of a volume annually, that the spirit of inquiry which it will excite, will stimulate its members to procure and read other books, as well as to derive knowledge from the volume distributed; and this will react in an increased demand from the bookseller. That such will be the result is not a matter of opinion merely; although the inferences upon which the opinion might be founded, are drawn from such well-established principles of human nature, that there is little room for doubt in regard to their correctness, were there no other ground for them to rest upon. But the experiment has been tried on a large scale, with the book which has been much more freely distributed than any other. In the extensive distributions of the Bible it has been found that the increase of sales has always kept place with the extent of the donations. If this is true where only one book is concerned, and the fact rests upon official authority, it must be so to a much greater extent, where the whole effect of an increased desire for books which an increase of reading will create is taken into the account.

The first volume of this Library of Practical Medicine presents strong claims to the interest of the profession, both from the nature of the subject treated of, in the two works included in it, and from the character and opportunities for observation of the several authors. Fever is always a severe, and often a dangerous disease; and a disease of such general prevalence, that in some or other of its forms it must come under the notice and treatment of every practitioner of medicine.

More than this, it in some way combines with, and produces modifications of, most other diseases; so that a knowledge of the true character and proper treatment of this disease is indispensable to a right knowledge of the character and treatment of every other.

The volume before us contains two treatises on this important disease. A *Treatise on Fever*, by Southwood Smith, M. D. and *Clinical Illustrations of Fever*, by Alexander Tweedie, M. D. One can hardly conceive a situation more favourable to an accurate observation of all the phenomena of disease than was enjoyed by both these gentlemen, for the observations upon which these treatises are founded. They were colleague physicians to the London Fever Hospital, an institution conducted with great liberality. The number of patients is sufficiently large to furnish every variety of case which the character of the disease, and of the epidemic constitution, and the condition of the population, would be likely to produce, with an extensive experience in each, and at the same time such liberal provision is made of professional and other assistance as to admit of a particular and satisfactory attention to each case, and a full record of its phenomena. Both physicians visit the hospital daily, and the patients as they are admitted are assigned alternately to each physician. Yet both seem to have had a sort of community of interest in all the patients. There is great similarity in the practice recommended by each, and both appear to have made use of the cases indiscriminately in preparing their several publications.

It is a little curious, that although the two treatises were published nearly simultaneously, and of course the observations upon which they are founded, must have been made at the same time, yet neither of them takes any notice, either of the practice or the publication, of his colleague. The subordinate medical officers are mentioned with approbation, but without any allusion by either to the other principal. The plan and objects of the two works are so different, that neither of them can be regarded as interfering essentially with the other. One is an elaborate treatise on the history, character, and treatment of fever generally; the other is a clinical report of all the fatal cases which occurred in the hospital, in a single year, with some concise remarks upon the character and treatment. While each author is pursuing thus his own way, a considerable number of the individual cases are reported a second time. This circumstance would at first view seem to constitute an objection to bringing the two works together into one volume, as presenting a useless redundancy; but on a closer examination it proves to be a decided advantage. The cases as reported in this volume are not mere copies from the house physicians

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diary, but are written out by the authors themselves, each selecting the most prominent features of the case as they were presented to his own mind. Hence, in the same case there is always a considerable diversity in the phraseology, as it is reported by each author, and not unfrequently, additional particulars by one which are passed over by the other. A comparison of the two reports of the same cases, enables us also to estimate the faithfulness and accuracy of both, and especially to see how far the powers of observation of the author are influenced by the theories he has adopted. We have thus a check upon the authors' imagination, such as is not often put into our hands. How far we shall have occasion to use it will appear, as we proceed. In the present volume the facility of comparing the cases in the two works, is increased by notes of reference from one to the other.

The treatise of Dr. Smith, as we have said, is by far the most elaborate of the two works, although it sometimes bears marks of some haste in the composition. It aims at nothing less than a complete history of fever, with an entire explanation of all the phenomena, by a new history of the disease, which is expected, or at least designed, to supersede all former theories on the subject. And this too not of fever as exhibited in one place, at a particular period of time; but of fever as a universal disease, as it prevails in every part of the world and in all its different periods.

After remarking upon the imperfect state of our knowledge of fever, and the consequent demand for further observations and inquiries, and stating concisely the objects proposed in his treatise, the author gives the following account of the opportunities and facilities which he enjoyed for the investigation of the subject.

"The London Fever Hospital is capable of receiving sixty-two patients; in most seasons of the year, its wards are full; often there are numerous applications for admission which cannot be received for want of room; there pass through the wards from six to seven hundred patients annually.

"Two physicians are attached to the institution, under whose care the patients are placed alternately in the order in which they are admitted; there is one assistant physician, whose duty it is to perform the office of the ordinary physicians when either of these may be incapable of attending, and there is, besides, a medical officer resident in the house. A history of each case, containing an account of the age, occupation and residence of the patient, together with as full a statement of the symptoms of the disease and of the order of their succession as can be obtained, is entered in the journal by the resident medical officer. Each of the ordinary physicians attends daily and enters in his journal a daily report of each of his own cases. The resident medical officer goes round the wards twice a day, namely, early in the morning and late in the evening, to observe if any change requiring attention may have taken place in any patient; and if any such change be observed by the nurses during the interval between

these visits, they are reported to him by the head nurse without delay; all such events, with the modification of treatment they may have required are entered in the journals. Every case that terminates fatally is examined after death, and an account of the morbid appearances is entered in a book kept for the purpose. In this manner, in the progress of years a mass of facts accumulates relating to the statistics, the types, the symptoms, the causes, the diagnosis, the pathology, and the treatment of the disease, whether successful or unsuccessful, which both on account of the fulness and accuracy of the record and of the extent of the period it embraces, cannot but be of great value." pp. 3, 4.

All this is very well and quite satisfactory, so far as the disease which is the immediate subject of investigation is concerned. But why we are to take it for granted that every other fever is like this—why we are required to receive the poorer inhabitants of a large and crowded city in a particular year, or series of years, as representatives in respect to the character of their diseases, of all the inhabitants of the whole globe, in all their variations of rank, and condition, and habits, and climate, and in successive periods of time, we are nowhere told. This is the great mistake of most, or all the systematic writers on fever. They assume the *unity* of the disease, and take it for granted that the particular form of it which may have come under their own observation gives a fair representation of the whole. We do not here overlook the fact that Dr. Smith in a single page speaks of fever as a genus consisting of several species and varieties. But this is merely an introductory remark and appears to be immediately forgotten, for he at once relapses into regarding the phenomena of the fever of the London Fever Hospital, as exhibiting the true character of fever generally, as a single disease, and this mode of regarding it extends through his whole work.

Yet every physician in general practice must have observed variations in the character of fevers at different times; especially if his observation have extended to different climates, which cannot thus be reduced to a uniform standard. The celebrated Dr. BAILLIE, after more than thirty years practice in the same good city of London, says that after he had ceased to be a physician to St. George's Hospital, and more especially since his patients had been chiefly in the upper ranks of society, he had seen not more than three or four cases in a twelvemonth of such fevers, as he had seen many of during the thirteen years that he was hospital physician.

SYDENHAM's doctrine of epidemic constitutions of the air has, undoubtedly, been carried to a great extreme, and been productive of great evils in practice. Physicians, instead of investigating the phenomena and character of individual cases of disease, have often sought out, or taken upon trust, an opinion in regard to the general consti-



tution of the diseases of the time, and the course of remedies adapted to it, and have been content to prescribe in the gross, with little attention to the peculiar features of each case. We have seen a respectable and experienced physician so confident in an opinion thus formed of the nature of a disease, as to be unwilling to countenance a younger neighbour, with whom he was in consultation, in an effort to obtain permission for a *post mortem* examination, regarding the investigation as unnecessary and useless, where the epidemic constitution was so well known. It not unfrequently happens too, when a man has gone thus far in giving himself up to his theories, that he does not stop even here; but having found all diseases for a time to be of a similar character, and to be cured by similar means, he next finds that all diseases are cured only by remedies of a particular class, while those of a different character only increase their severity and fatality. Or perhaps it would be more correct to say, that having abandoned the habit of observation, in reliance upon his belief of the universal influence of the supposed constitution of diseases, he does not watch closely enough to perceive it, if that constitution itself should change to one of a very different, perhaps an opposite character.

It appears to be in this manner, that most of the party feeling is formed among physicians in regard to modes of practice, and which in some parts of our country has proceeded to divisions and recriminations, by no means honourable to the profession. It is curious to observe too, that the extreme to which these men have arrived is, in its practical results at least, directly the opposite of that with which they began, and nearly the same with that which they at first vehemently opposed; and to which many of them think themselves still opposed. There are, in fact, two extremes in this, as well as in every other case; and here, as elsewhere, the advocates of each are more nearly in approximation than either are aware of.

The disposition to *generalization*, which forms so prominent a feature in the whole human character, is nowhere more extensively exhibited than in medical theories. Within proper limits it is, indeed, necessary in the cultivation of this as well as of every other science. But in reducing science to practice, it may well be doubted, whether it is not uniformly hurtful in its tendency. If the physician were compelled to investigate each case of disease by itself individually, without any reference to its resemblance or relations to others, inquiring only what organ or function is deranged, and how, and estimating the effects of the particular derangement upon the general system; although he might often err in his estimate of the state of each organ, we should probably have less injurious practice than we



now have, in consequence of the classification and generalization of diseases.

The doctrine of the *unity* of fever has been a fruitful source of that sort of generalization in practice, which confounds the peculiarities of individual cases. How many a man has been bled and purged incessantly, because Dr. RUSH was successful in the epidemic of 1793, in the use of the lancet, and jalap and calomel; and that too, in diseases which have little affinity to that, except, perhaps, in some remote synonym. The same thing is equally true of other modes of practice. It matters little, whether the practice be stimulating or depleting, vomiting, purging, or sweating, exciting or anodyne, unless the remedies are rendered applicable by a knowledge of each individual case; all are bad—bad in principle, and bad in the results.

But although we are not ready to concede to the fever described in this treatise, all that is claimed for it as a representative of fevers in general, yet we are not disposed on that account to detract from the merit or value of the work itself. A good description of fever in any of its forms, which clearly exhibits the phenomena of the disease in connexion with the internal derangements which produce them, and which faithfully points out the results and the rationale of the practice adapted to it, will serve as a standard of comparison for other forms of the disease, to a degree scarcely less important than if all were really alike. The practitioner is not, indeed, enabled to prescribe upon the naked authority of his author, without some reflexion or thought of his own; but he has the means of applying the author's observations to the analogous phenomena of his own case.

Such a description of fever we have, in the view we take of it, in the work before us. It is intermingled, it is true, with theoretical speculations. But the descriptions are clear and vivid, and are supported and illustrated by an extensive series of examinations upon the dead body. If it be true, that the ardour of supporting a favourite theory has sometimes betrayed the author out of a perfect impartiality in regard to the character and selection of his observations, he is so obviously unconscious of any such deviation, that it takes little or nothing from our confidence in the general integrity and faithfulness of his descriptions. It is his manifest intention, by the extent and variety of the facts with which he presents us, to afford us the means of drawing from them our own conclusions; although it is often not less plainly to be seen, that he confidently expects that our conclusions will differ little from his own.

Our author prepares the way for the exhibition of his own theory

of fever, by the comparatively easy task of showing the incorrectness or insufficiency of previous theories. After giving a concise account of the doctrines of the best ancient, and several of the leading modern writers, he says—

“All the partial and imperfect views of fever, which have now been brought before the eye of the reader, originate in one or other of the following errors, obvious as they all are; either that of assuming as a fact what is merely a conjecture; or that of assigning to the genus what belongs only to the species; or that of characterizing the disease by what appertains only to a stage; or that of mistaking the effect for the cause. On careful examination, it will appear, that one or other of these errors, which are as serious as they are palpable, has vitiated, in a greater or less degree, every generalization of fever that has hitherto been attempted.

“Thus the believers in debility derive their notion of the whole disease from the phenomena which occur in the first and last stages only; in these, it is true, they may find abundant evidence of debility; but then they overlook the intermediate stage, in which there are generally the most unequivocal indications of increased sensibility in the nervous, and increased action in the vascular systems; in this manner they characterize the disease by what appertains only to certain stages of it. Again, when they contend that debility is not only the essence of fever in general, but is really characteristic of every type of it, they affirm what is indisputable of fevers in particular seasons, in particular climates, or in particular constitutions; but beyond this, their generalizations cannot be extended; in this manner they assign to the genus what belongs only to the species. And when Cullen goes on to affirm, that the proximate cause of all the morbid phenomena is a ‘spasm of the extreme vessels,’ he commits the additional and more palpable, but not less common error, of assigning as an undoubted fact, as a real and ascertained occurrence, what is only a conjecture, and for which there is not, and for which he does not even attempt to adduce the shadow of evidence.

“Precisely similar to this, is the error of those who, for the most part belong to the same school, and who attribute the essence of fever to a morbid condition of the blood. The blood may be diseased in fever, but if it be so, these writers do not know it, or at least they do not adduce any evidence that they are in possession of such knowledge; they do not appear so much as to have questioned chemistry; at all events, it is certain that they have hitherto received no satisfactory answer. There is no evidence on record, that the alleged determination of the blood takes place in every type and every degree of fever; and if there were, it would still be but one event among many, and one that occurs late in the series, and therefore could possibly be nothing more than an effect.

“In like manner, those who maintain that inflammation of the brain is the sole cause of fever, assume as an established and admitted fact, the universal and invariable existence of inflammation of the brain in this disease.

“Inflammation of the brain, without doubt, is demonstrable of many individual cases, and of some whole types; but beyond this, there is no proof that the generalization can be carried; the evidence indeed, in regard to many cases, is entirely against the assumption, and is as complete as negative evidence can

well be; consequently, it must be admitted, that even this hypothesis, in the present state of our knowledge, is founded on the error of assigning to the whole genus what belongs only to particular species; and it would be trifling with the reader to attempt to prove, that this is still more certainly and strikingly true with regard to inflammation of the mucous membrane of the stomach and intestines—an affection which in innumerable cases in which its existence is certain, clearly appears, on the slightest examination of the succession of events, to be an effect, and not a cause." pp. 18, 19.

He then proceeds to the development of his own views of fever as follows:—

"The frequent and formidable disease, on the investigation of which we are entering, cannot be understood until clear and exact answers are obtained to the following inquiries. 1. What is the series of phenomena which constitutes fever? 2. What are the particular phenomena which are common to all its varieties and combinations? 3. What is the order in which these phenomena occur in the series? 4. What are the organs, and what their states, upon which these phenomena depend? 5. What are the external signs of these internal states, or what are the indications by which their existence may be known? 6. What is the external noxious agent or agents, or the exciting cause or causes, of the disease? 7. What is the particular remedy, or the particular combination of remedies, which is best adapted to each state of each organ? When these questions can be clearly and perfectly answered, and not till then, we shall know the disease and its treatment. In order to make any real progress in this knowledge, we must therefore prosecute these inquiries. It appears to me that we are already in possession of ascertained facts, adequate to answer, with a high degree of certainty, though perhaps not with absolute certainty, several of these questions. In keeping these inquiries steadily before our view in our investigation, there will be this great advantage, that it will enable us clearly to perceive what we really know, and what still remains to be ascertained." p. 20.

"The first thing to be done then, is to ascertain the course of symptoms, and the second, to determine the order in which they occur; when these two points have been made out, what is essential, and what adventitious, as well as what is the cause, and what the effect, become at once clear and certain. But the difficulty lies in discerning amidst the infinite diversity and contrariety of symptoms which the different modifications of fever present, when we may safely assure ourselves that we are in possession of all the essential phenomena. Our guide is invariableness of concurrence. If we can ascertain that a certain number of events invariably take place in every form and every degree of fever, these events will give us the particular phenomena which are common to all the varieties of the disease. If we can further ascertain that these events invariably concur in a certain order, we shall have discovered what events bear to each other the relation of cause and effect. And the establishment of this relation of events, this constant connexion with each other, this uniform antecedence and sequence, appears to me to be the only theory after which it is consistent with the principles of sound philosophy to search. If I have endeavoured to establish this connexion, and have thus ventured, as I conceive in a

strictly philosophical sense, to propose a theory, in doing so, I have carefully restricted myself to the attempt to deduce a legitimate conclusion from facts previously ascertained. It does appear to me that these three points, namely, the common phenomena, the invariableness of their concurrence, and their mutual relation are satisfactorily established. Whether I shall be able to communicate this conviction to the reader, I do not know; but I hope he will at least coincide with me in opinion, that this mode of investigating the disease affords us the best chance of arriving at satisfactory results.

“Whatever be the phenomena of fever, they depend upon certain states of the organs. Whatever be the noxious agents, or the exciting causes of the disease, and however they operate, they can induce the disease only by bringing about a certain condition in a certain number of organs, the individual events constituting the disease being nothing but certain changes in these organs. It is therefore of paramount importance to ascertain what the organs are which are implicated; what the conditions are which are induced in them; what organ sustains the first assault, and what organs are attacked in succession. The pathology about to be laid before the reader will demonstrate the first two points; the establishment of the last two will be attempted by an examination of the history of the cases.

“Without doubt the life or death of the patient depends upon these conditions of the organs. In a practical point of view, therefore, this is the kind of knowledge with which it is of the greatest importance that the practitioner should be familiar. Some of these conditions are indicated by certain signs during life; some of these indications are obscure, and may be easily overlooked or mistaken by those who have not acquired an accurate and extensive acquaintance with the disease. On the other hand there are external appearances which are extremely apt to suggest a false notion of the state of the internal organs. These fallacious appearances are sure to lead those whom they deceive into a mistaken, often into a mortal practice. Certain conditions of vital organs, if allowed to remain long, will terminate in fatal changes of structure.

“Certain remedies, if applied in due season, and with due vigour, are capable of removing those conditions. Life, therefore, must sometimes depend upon the power of making this diagnosis with accuracy. Of some of these conditions the diagnostic marks are clear and certain; those which indicate other conditions, in the present state of our knowledge, are obscure and uncertain. I have thought no labour too great to put the reader in possession of all that I have been able to ascertain with regard to this most important part of the subject. In the attempt to communicate this information, I am conscious that I may incur the charge of tediousness, on account of the number of repetitions which occur, and which I have allowed to remain, because I could see no means of removing them without sacrificing clearness to brevity. Elegance and conciseness in a work of this nature ought not for a moment to be considered if they endanger its practical usefulness. A knowledge of the condition of the internal organs in fever can alone guide us to a rational and successful treatment of this most dangerous disease. It is only by examining the body after death that we can acquire this information; it is only by observing the symptoms during life, and comparing them with the morbid appearances after death, that we can discover the signs which indicate the existence of these states. For these reasons

I have not hesitated to give numerous cases, and to detail many dissections. If after the study of these cases and dissections the practitioner be enabled at the bed-side of the fever patient to discover with greater precision and certainty than heretofore the condition of the brain—the condition of the lungs—the condition of the intestines, he will not think the time he has devoted to the investigation ill spent, nor shall I think myself without reward for the labour it has cost me to draw up the record. It is only when from external appearances we are able to see what is going on within each of the great cavities of the body, as clearly as we should do if their walls were transparent, that our interference can be sure of doing good, or secure from doing mischief; it is this kind and degree of knowledge alone which can teach us both when to act and what to do; and what is of almost equal importance, when to stop and to attempt nothing; and if the perusal of this work should contribute in any measure to the attainment of this knowledge, I shall not have laboured wholly in vain ‘to add something to the treasury of physic.’” pp. 21–23.

If by “condition of the organs” the author could be supposed to have reference to changes in the state of the functions, as well as of the structure of the several organs, few perhaps would be found to differ from him in this view of the disease. But this is far from being his view of the matter. Not from this passage only, but from the whole work, it appears that he recognises no derangement of the powers or functions of any organ which does not bring with it the evidence of its existence by a positive change of structure, manifested by certain diagnostic signs during life, and clearly exhibited by dissection after death. Thus, the whole class of *functional* diseases, in contradistinction from *organic*, is to be thrown out of our consideration.

This is a great change in the philosophy of disease, and one which we are not yet prepared to adopt in the aggregate. It is indeed not unlikely to be true, that every change of function is accompanied by some variation in the condition of the solids which enter into the minute composition of the organ; and it is perhaps possible that our improvements in anatomical science, both healthy and morbid, may eventually extend so far as to enable us to appreciate all such changes, and apply them to the purposes of pathology and practice. We are willing to allow too that a diligent and vigilant examination might often discover organic changes of structure in cases which are now suffered to pass as purely functional. This is especially the case with the diseases of habitual drinkers of ardent spirit. Every practitioner knows how badly these patients bear bleeding, and other depletion, even in diseases which freely require them in other persons. This fact is generally attributed to exhaustion of the excitability of the living body by unnatural stimulus, and perhaps in most cases this is the only explanation we can give of it. Yet we have some-

times seen in such cases, and with no more than usual indication of it in the character of the symptoms, suppuration and other extensive organic changes in the brain and its membranes. It would require much more extensive observation of similar cases, with similar results, to establish this as a settled rule in pathology, especially since it is contradicted, by the negative testimony at least, of so many examinations in diseases of inebriates, where no such changes of structure were discovered.

It is to be expected, that with the advancement of medical knowledge, the number of diseases that are regarded as purely functional will be diminished, by the transfer of many to the class of those whose effects on the human system are more fully understood. But before we can give our consent to such a transfer, we must be well satisfied that the claim to a right understanding of a given disease is well founded. We surely are not to be called upon to take it all for granted, and rest satisfied with the opinion because an author chooses to make it the basis of a new system of pathology for an extensive class of diseases. It is true that a great variety of morbid changes of structure are exhibited in the dissections with which this work abounds. But these changes are not so connected with the symptoms of each case as to furnish the necessary evidence that they are dependant upon each other. The cases are detailed for an entirely different purpose, and the author seems scarcely to be aware that he is taking new ground, or ground that is not already perfectly settled, in the position to which we have referred.

We proceed with our author's theory of fever. And here we are happy to be able to give it in a condensed form in his own words.

"In relation to our present subject then, the first object of inquiry is, what are the events which invariably concur in fever?

"Where shall we look for the events? Not in the symptoms. Symptoms are not events; they are only indications of events; symptoms depend upon states of organs; they are the external and visible signs of internal, and, for the most part, as long as life continues, invisible conditions. It is then to the state of the organs that we must look for the events of which we are in search. Are there any states of any organs that always exist in fever? Are the states constant? Are the organs affected constant; and can both be ascertained? If this can be truly answered in the affirmative; if it can be proved that there are certain conditions of certain organs which invariably exist in fever, in every type, in every degree, in every stage of it, we shall have arrived at a satisfactory conclusion relative to the first part of our inquiry. The evidence is as complete as observation during life and inspection after death can make it, that a morbid change does take place in a certain number of organs in every case of fever, from the most trivial intermittent to the most alarming continued fever, from the mildest plague to the most malignant typhus; that at the two extremes



of this scale, and at all the intermediate gradations of it, there are certain organs which are always affected, and that the affection in all is similar. The identity of the organ is inferred from the indications they give of disordered function during life; the identity of the affection is inferred from the similarity of morbid appearances which they exhibit on examination after death.

"The organs affected are those which constitute the nervous system, those which constitute the circulating system, and those which constitute the systems of secretion and excretion. The spinal cord and the brain; the heart and the arteries, especially the capillary extremities; the secreting and the excreting organs, which in fact are composed essentially of the capillary extremities of the arteries; the secreting and excreting extremities of these arteries, especially as they terminate in the external skin and in the mucous membranes which form the internal skin; this is the chain of diseased organs: derangement in the nervous and sensorial functions; derangement in the circulating function; derangement in the secretory and excretory functions; this is the circle of morbid actions.

"There never was a case of fever in which all these organs and affections were not more or less in a morbid state; there never was a concurrence of this morbid state in this complete circle of organs, without fever. The events which invariably concur in fever, then, are a certain deviation from the healthy state in the nervous and the sensorial functions; a certain deviation from the healthy state in the circulating function; a certain deviation from the healthy state in one functions of excretion and secretion. A deviation from the healthy state in one circle of actions will not present phenomena of fever; a deviation from the healthy state in two circles of action will not present the phenomena of fever; there must be a deviation in the three circles before fever can exist. Such then are the common phenomena of fever." pp. 27-29.

"The order of events then is, first, derangement in the nervous and sensorial functions; this is the invariable antecedent; secondly, derangement in the circulating function; this is the invariable sequent; and thirdly, derangement in the secreting and excreting functions; this is the last result in the succession of morbid changes.

"Supposing the matter of fact to be as it is here stated, and the proof that it is so will be adduced hereafter, it is clear that we are in possession of the true characters of fever. We know the events, we know the order in which they occur, we know, therefore, what it is that constitutes the disease, and we know, consequently, what it is by which it is distinguished from every other malady. No other disease exhibits the same train of phenomena in the same order of succession. In inflammation some of the phenomena are the same, but the order in which they concur is not the same; and this affords a clear and universally applicable mark of distinction between fever and inflammation. In inflammation there is similar derangement in the secreting and excreting functions; there is also sometimes similar derangement in the circulating function; but the derangement in the nervous and sensorial functions is seldom if ever similar; the derangement that does take place in these latter functions, while it is apparently different in kind, is certainly and invariably different in the order of its occurrence.

"In pneumonia, in enteritis, in hepatitis, the spinal cord and the brain are never the organs in which the first indications of disease appear; the earliest in-

dications of disease that can be discovered have their seat in the affected organ itself; it is only after the disease has made some progress that other organs and functions are involved, and apparently the last to be involved, and certainly the least to suffer, is the nervous system.

"We can now then answer the question so often asked—are fever and inflammation the same? and if not the same, in what do they differ? Fever and inflammation are not the same, because the term fever is appropriated to the designation of a certain number of events which occur in a certain series: the term inflammation, on the other hand, expresses another series of events, each event composing this train succeeding each other in a different order; and the difference between the two series of events is precisely this difference in their individual phenomena and in their order of succession." pp. 29, 30.

The distinction here attempted between fever and inflammation is arbitrary and unsatisfactory. A certain round of phenomena is assumed as essential to the character of fever, and whatever comes not within the circle is pronounced not to be fever; not because the phenomena themselves are not those of fever—for all the phenomena of inflammation are included within his essential characteristics of fever—but because they do not arise in the prescribed order—in other words, because they are too intractable to yield to their place in the new theory. Fever is made up of certain events, and these events include all the changes produced by inflammation; but because inflammation may also exist out of the train of those events, it must be excluded as a distinct disease, lest it should disturb that beautiful order of events upon which the whole theory rests. Doubtless inflammation is a distinct disease; but it is so for simpler and better reasons than for the far-sought reasonings of theoretical speculation. As well might we say that peritonitis is not inflammation, because it has not the cough and expectoration of pneumonia, as to say with our author, that increased vascularity of the mucous membrane of the bronchi, with purulent secretion, &c. is in one case inflammation, in the other not, according as it is or is not preceded by certain affections of the brain and nervous system.

Having thus stated his theory, our author breaks forth into the following glowing description of its universal adaptation to all varieties of fever.

"Supposing the proofs hereafter to be adduced to be conclusive, that the events in fever and their order really are what has now been stated, how clearly and beautifully does this view of the disease enable us to recognise one and the same malady through all the modifications it undergoes, and therefore through the countless aspects it assumes. Out of the system of organs that are always affected in fever, some may be more and some less diseased; and it is easy to see how, from this diversity alone, the utmost variety may arise in the external character of the disease. Thus at one time the spinal cord and the brain may be intensely

affected; consequently the patient may be seized with violent pains in the limbs; with ferocious head-ache; with early delirium, which may rapidly increase to such a degree of violence as to require restraint; or, on the contrary, all the muscles of voluntary motion may be seized instantaneously with such a loss of energy that they may truly be said to be paralyzed: at the same time the sensorial faculties may be overwhelmed almost as completely as they are in apoplexy; thus may be formed one type of fever: and such a concurrence of symptoms is actually found to exist: it ushers in the plague when it first stalks into a devoted city to sweep away its thousands and its tens of thousands.

"At another time the disease may seize with peculiar violence on the organs of secretion, and especially upon those which belong to the digestive apparatus: hence the liver may suddenly pour forth an immense flow of bile, so vitiated in quality as to irritate and inflame whatever it touches, and so abundant in quantity as rapidly to diffuse itself over every part of the body, and to tinge almost every tissue and every fluid: at the same time the stomach and intestines may be involved in such acute disease that the powers of life may be exhausted in a few hours by incessant vomiting and unconquerable purging: thus may be formed another type of fever; and such a course of symptoms actually occurs in the yellow fever of the West Indies.

"Now we may witness a severe though a less violent affection of the spinal cord and the brain, than occurs in plague. There may be present great pain in the back and limbs; intense head-ache; early and violent delirium; a burning skin; a quick and strong pulse; urgent thirst, and constipated bowels: or, on the contrary, there may be not pain in the head, but giddiness; not delirium, but stupor; not a burning hot, but a moderately warm or cool skin; not a frequent and strong, but a frequent and feeble pulse. In either case we have a fair specimen of the common fever of our own country, the first forming the variety which may be termed acute, the second sub-acute cerebral.

"Now again we may witness a concurrence of symptoms very similar to the latter in the commencement of the attacks, only that there is from the beginning greater prostration of strength, and a rapid increase in the derangement of the nervous and sensorial functions, together with a brown and dry tongue, a tender abdomen, and dark and offensive stools: thus may be formed another type of fever to which is commonly assigned the name of typhus." pp. 31, 32.

It is an easy matter to frame the theory which shall adapt itself to a great variety of occurrences. But to establish the theory upon the basis of facts and sound reasoning, *hoc opus, hic labor sit*. It would be doing great injustice to Dr. Smith, however, if we were to leave the impression that he rests the truth of his theory at all upon this ground of adaptation. His constant appeal is to observation and fact, with how much success we shall presently see; and having given an outline of his view of the nature of the disease, he proceeds to a particular description of fever as it is exhibited in its symptoms and by dissections. In doing this, although his object is of course to illustrate and support his particular views, he enters into his descriptions with so much ardour, that he seems at times almost to forget the tram-

mels of his theory. And it is no difficult matter for the reader, when in pursuit of practical instruction, to forget it entirely; and then he will find a rich fund of interesting and useful information. We regard this as by far the most valuable part of the treatise; perhaps we might say the part which alone can secure to the work any permanent reputation in the profession.

We cannot follow the author in detail in his descriptions of fever. A clear and animated description will not admit of being condensed into an abstract without becoming dull and obscure. He does not regard with any favour the divisions of fever into synocha, synochus, and typhus; for, as in his view, all fevers are of the same general character, the only distinctions necessary to be observed between the several cases are such as have reference to the intensity of their action upon each of the several organs. In order to avoid coining new terms, however, he retains those of synochus and typhus, taking care to explain them as expressing only different degrees of severity. Each of these has two sub-divisions, *mitior* and *gravior*, and each of these again is farther distinguished as it is accompanied by severe cerebral, thoracic, or abdominal affection.

We have said that the author often enters into his descriptions of the phenomena of fever with great freedom and spirit, as if released from the necessity of supporting a favourite theory. Yet he as frequently returns to it, and his descriptions are interspersed with remarks designed to show the applicability of the various events described to the pathological views before explained. Instead of following him through his details of symptoms and morbid appearances, we may therefore take this occasion to inquire how far his peculiar views of the nature of the disease is supported by them.

It must here be remembered that an affection of all the organs concerned in producing the train of events which, in the view of the author, constitutes fever in every case of the disease, and of sufficient severity to show itself by a change of structure, is an indispensable part, or rather the great whole of his theory. There must in every case of fever be "the invariable concurrence of a particular number of events," and added to it "invariableness of concurrence in a particular order." "In the organs," we are told, "we can find a perfect uniformity; their condition is as fixed and invariable as the return of day and night." "The causes of fever, whatever they be, under the same circumstances, always produce the same conditions of the organs." And these conditions, and the order in which they show themselves, are, "first, derangement in the nervous and sensorial functions; secondly, derangement in the circulating function;

and thirdly, derangement in the secreting and excreting functions."

A careful comparison of the cases so abundantly furnished in the two works before us, will enable us to judge how far these opinions are supported by them. For as it is assumed to be the essential character of the disease, that certain affections should have manifested themselves, if the evidence of any of these affections is wanting in any case, certainly if it is wanting in any considerable number of cases, then the whole theory necessarily falls. Now, the impression which was made on our own minds, and which we believe will be made on the mind of any one, on a first perusal of the descriptive part of the work, is that of the great diversity of the cases, illustrating a great variety of affections having but a general relationship between them. Much of this diversity may be accounted for, on a closer examination, by the different degrees of intensity of the several organs in the different cases. But there is also much that cannot be so resolved into uniformity.

We may discover in this part of the work a readiness of accommodation of the facts described to the theory adopted, which shows how strongly that theory has taken possession of the author's mind, although we see not the least appearance of intentional unfairness. For example, the affection of the head, which is regarded as the first in the train of events that constituted fever, is of so general a character, that any morbid change within the cranium is taken as proof of its existence. Vascularity of either of the membranes, or of the brain itself—deposition of lymph, or serum, or pus, between the membranes, or in the ventricles, or at the base—hardening or softening of the substance of the brain—are all, or either of them, received as satisfactory evidence that fever has been there. We may well ask if some or other of these morbid appearances within the cranium will not be formed in a large proportion of cases of death produced by any other disease whatever. And yet enlarged as is this allowance for the effects of fever in the head, there is a considerable proportion of cases in which none of them are discovered. Of about a hundred cases in which the state of the head, as exhibited by dissection, is reported by Dr. Smith, the appearance of the head in nine is said to be natural. And it is worthy of remark too, as it regards the position that affections of the organs are always connected with some change of structure, that some of these nine cases exhibit their full share of pain in the head, confusion of mind, and delirium, during life, although no traces of the derangement are left upon the organ after death.

The absence of marks of disease, which, according to Dr. Smith's theory, should be always present, becomes still more striking by a reference to Dr. Tweedie's report of the cases during the year of his clinical illustrations. The whole number of deaths that year, the cases of which are all reported, was seventy-two, only fifty-four of which were examined. Of this fifty-four, in fifteen the appearances in the head are declared to be healthy; those of the chest are so in fourteen, and those of the abdomen in twelve.

This leads us to take notice of the cases of which the reports are repeated in the two works. It might have been expected that where there is so strong a predilection for a favourite theory, those occurrences which go to support that theory should be stated somewhat more strongly than they would be by an indifferent observer, and some instances of this kind appear; for example, when Dr. Tweedie says, there were "slight appearances of inflammation of the membranes of the brain, with increased serous effusion under the arachnoid, and also in the lateral ventricles," p. 338, Dr. Smith says, "arachnoid highly vascular; effusion beneath all the membranes; more fluid than natural in the lateral ventricles." p. 160. Again Dr. Tweedie says, "slight serous effusion beneath the arachnoid," p. 339, and Dr. Smith, "effusion between all the membranes, and into all the ventricles." p. 182. Similar differences in the strength of the expression may be observed in many other instances; but in none do they essentially change the general aspect of the case.

In narrating his cases, Dr. Smith has distinguished those morbid appearances which he does not regard as the effects of fever from those which are produced by that disease. This mode of proceeding exhibits another facility by which he is enabled to escape from the inconvenience of untractable symptoms or occurrences. Many of the distinctions appear to us to be wholly arbitrary, or at least to have no better ground to rest upon than the fact that some occurrences are more frequently attendant upon fever than others. For example, inflammation of the mucous membrane of the lungs is always regarded as one of the legitimate effects of fever, while inflammation of the serous coat, even when the marks are those of recent affection, is excluded. Yet this last occurrence is found nearly, or quite as frequently as the other.

Infiltration into the substance of the lungs is sometimes included among the effects of fever, and at others rejected. Tuberculated lungs are in one instance at least included, although generally tubercles, hepatization, and other changes of a more chronic character, are regarded as accidental. The same irregularity is observable in



assigning the morbid appearances discovered in the abdomen. In general, inflammation of the mucous membrane, here as in the thorax, is set down to the fever, and that of the serous membrane to other causes, even when the intestines are found adhering together as the consequence of recent inflammation in the immediate vicinity of ulcerations in the mucous membrane. Inflammation and ulceration of the mesenteric glands, (and in one case which Dr. Tweedie calls scrofulous ulceration,) are attributed to the fever. So also are hardenings and softenings of the spleen and the pancreas, while similar changes in the texture of the liver are generally excluded. It may perhaps be that some of these irregularities are the result of accident or inattention, or of typographical errors. But it is impossible not to feel some distrust of a theory which requires or admits such remarkable facilities for escaping from unfavourable conclusions.

We make one more extract from this part of the work, in order to give the author's summary of his theory.

"In conclusion then, the doctrine of fever, which appears to approximate most nearly to the truth, may be summed up in few words. The immediate cause of fever is a poison which operates primarily and specifically upon the brain and the spinal cord. The diseased state in which these organs are brought by the operation of this poison, deprives them of the power of communicating to the system that supply of stimulus, (nervous and sensorial influence,) which is requisite to maintain the functions of the economy in the state of health. The organs, the seats of the functions, deprived of their supply of nervous influence, become deranged, the derangement in each taking place in a fixed order, and in a determinate manner. Subsequently to the nervous and the sensorial, the organs the next to suffer are those of the circulation, then those of respiration, and ultimately, those which belong to secretion and excretion. The condition of the nervous system which produces this derangement in this circle of organs, occasions further, in that portion of the circulating system which consists of the capillary blood-vessels, that peculiar state which constitutes inflammation; hence inflammation is almost always established in one or more of the organs comprehended in the febrile circle, and sometimes in all of them. The peculiar and primary affection of the nervous system, which is here assigned as the cause of inflammation, does not become identical with inflammation, but superadds the morbid condition of inflammation to its own; does not lapse into or terminate in the inflammatory state, but accompanies it, and by this combination modifies in a peculiar manner the inflammatory process." pp. 203, 204.

We have followed our author patiently, and we trust fairly, through all his proofs of the positions upon which his theory is founded; and the result is, that to our minds he does not furnish satisfactory evidence of such conditions of the several organs, and such an unvarying

train of event as his theory supposes. We have hardly been able to escape from some feeling of surprise, that with so great a fund of materials before him, and with such power of using them, he has not made out a much stronger case than we think he has presented to us. We account for it only by the belief that his fairness and integrity of mind have shunned to seek out facts on which to establish his theory, although when the facts are freely and truly presented, so far as it is possible for any man, whose predilections are so involved in them, to present them fairly, he has not failed to make the strongest use of them for this purpose.

There is something in a high degree irrational in supposing two independent causes of inflammation, the one arising from the train of events which produce fever, the other entirely disconnected from all such events. This absurdity, (it is not too much to call it so,) we are driven to by the determination to acknowledge only a single agency operating at the same time to produce disease. And yet how often do we, in practice, find diseases to be modified and complicated by occurrences obviously independent of each other in their origin. Nay, we may rather say that death is rarely produced in our climate by a simple uncombined disease, compared with the frequency with which it is the result of a perplexing complication of disorders. There is no difficulty in supposing that the causes which produce inflammation should operate at the same time with those which produce fever, as well as, or even more frequently than, at other times, and the greater or less predominancy of either the fever or the inflammation, will give rise to all the modifications between them which are ever observed in practice.

We pass over the chapter on the cause of fever, because it is a subject which has been abundantly and ably discussed among us recently. Of our author's treatment of fever we have something to say, but we are unwilling to enter upon it at the close of so long a discussion, and we therefore defer our remark to another number.

E. H.